

## REMARKS

The Official Action dated October 16, 2006 has been carefully considered. Indication of allowable subject matter in claims 41-43 is acknowledged and appreciated. Applicants respectfully submit that the following remarks draw attention to aspects of the asserted prior art reference that may have been overlooked by the Examiner, and thereby distinguish and establish the patentability of the presently inventive compositions there over.

Claims 1-8, 10, 12-23, 25-36 and 38-43 are pending in the application and claims 8, 10, 12-14, 21-23, 25-27, 34-36 and 38-43 are currently subject to examination.

### 35 U.S.C. § 103(a)

The Examiner has rejected claims 8, 10, 12-14, 21-23, 25-27, 34-36 and 38-40 as being unpatentable over U.S. Patent Application Publication No. 2001/0008879 A1 to Willey. (hereafter "Willey"). Specifically, the Examiner notes that Willey discloses photobleaching compositions comprising phthalocyanines [known in the art as a macrocyclic compound having an alternating nitrogen atom-carbon atom ring structure and able to coordinate hydrogen and metal cations in its center by coordinate bonds with the four isoindole nitrogen atoms]. The Examiner asserts that the compositions may further comprise about 0.1-10% inorganic salts such as sodium chloride and peroxygen bleaches such as Oxone, with bleaching agents typically present at about 1-30% and that the composition pH is adjusted to about 7-13 with buffers such as carbonate or bicarbonate. The Examiner notes that specific amounts of buffer are not disclosed but contends that "determination of the buffering-effective amount of a disclosed buffer would amount to an ordinary expedient." The Examiner further asserts that Willey teaches suitable surfactants and co-solvents. The Examiner notes that Willey fails to disclose "a composition which reads on the applicants claims with sufficient specificity to constitute anticipation," but submits that it would have been obvious to make the applicants' compositions because Willey teaches that all of the ingredients recited by the applicants "are suitable for inclusion in a bleaching composition," and that the recited composition would be expected to have properties similar to the compositions which are exemplified absent a showing to the contrary. This rejection is traversed and reconsideration is respectfully requested.

Present independent claim 8 is directed to a novel composition. The composition comprises: **one or more oxidants**, at least one of which is selected from the group consisting of: a monopersulfate compound in the forms derived from alkali metal salt of peroxymonosulfuric acid alone or in combination with the alkali metal salts of sulfuric or persulfuric acid; perborate; peracetate; percarbonate; hydrogen peroxide; and dioxirane compounds, wherein said oxidants are present in the composition in a concentration range of about 0.1-40% w/v; **one or more halides**, at least one of which is selected from the group consisting of an alkali metal and an alkaline earth or transition metal halide salt, wherein said halides are present in the composition in a concentration range of about 0.1-40% w/v; **a buffer** selected from the group consisting of alkali metal salt forms of carbonate and bicarbonate, capable of bringing the composition to a pH in the range of about 4 to about 10, wherein said buffer is present in the composition in a concentration range of about 0.05-20% w/v; and **water**.

Independent claim 21 is directed to a composition similar to that defined by claim 8, except that the **one or more halides** are present in the composition in a concentration range of about 3-40% w/v, and the composition is specifically formulated such that the oxidants, halides and buffers are present in sufficient amounts to generate hypochlorite species in solution.

Independent claim 34 is also directed to a composition. The composition defined by claim 34 is similar to those defined by the other independent claims, except that the **one or more halides**

are present in the composition in a concentration range of about 0.1-40% w/v, the **buffer** is capable of bringing the composition to a pH in the range of about 6 to about 10 and is present in the composition in a concentration range of about 0.05-20% w/v.

The instant specification teaches that the presence of a metal halide salt in combination with the specifically disclosed oxidants yields an unexpected synergistic effect with respect to reactivity toward chemical and biological toxicants [0009, inter alia]. The present inventive compositions are specifically formulated to provide in situ generation of the oxidative active, for example, as described in paragraph [0011] to provide the in situ generating capability for desirable oxidative chlorine species, "such as in the form of hypochlorous acid and/or hypochlorite species, but within non-corrosive, neutral pH conditions." The present specification further teaches that while known commercial bleaches may include the sodium salt of hypochlorite, that are extremely destructive due to being based in a highly alkaline hydroxide [0015]. In addition, decomposition during storage is a well-known deficiency of commercial bleach preparations, "diminishing the reliability of their potency if used as a decontaminating solution" [id]. The key to the unexpected synergy with respect to decontamination achieved by the instantly inventive formulations is found in the combination of oxidants and halide salts in a water based solution [0018]. The addition of the disclosed buffer ingredient permits a "more practical use" since corrosive alkaline or acidic conditions may be avoided [0020]. Hence, the present invention is disclosed as providing high decontamination capacity with a minimum potential burden on the environment [e.g. 0027].

Wiley, on the other hand, is directed to compounds which have utility as photosensitizers for photobleaching of stains from textiles and hard surfaces (see, e.g. [0001]). Wiley specifically teaches the use of phthalocyanines to form an oxidative species capable of reacting with stains to make them colorless [0002]. Wiley discloses that a limitation to formulation with this class of compounds is that "the compounds are not inherently water-soluble" [0007], and that the desired photophysics may be compromised by increasing water solubility [0008-0009]. The Wiley invention provides compounds of this class that do not exhibit this trade-off in formulation characteristic. An object of the Wiley invention is "to provide photobleaching compositions that comprise nonaqueous and low aqueous carriers...wherein water constitutes less than half of the carrier liquid" [0018].

In addition to their inventive compounds, the Wiley specification includes a laundry list of chemicals and compounds known in the bleaching arts. As noted by the Examiner, however, Wiley fails to expressly teach the combination of ingredients recited in the present independent claims. The motivation Wiley teaches as guiding the selection of ingredients for any particular solution is related to the balancing of solubility of the photobleaching agent with its efficacy as a photoactivator. There is no teaching or guidance in Wiley of providing formulations which exhibit synergy with respect to the decontamination efficacy of oxidants and metal halides, and the in situ generation of peracid bleaches including, as an express and "preferred" example, hypochlorite. Hence, there is no motivation in Wiley to formulate a composition as defined by instant claims 8, 34 and 40. In fact, Wiley expressly teaches away from the presently recited compositions, noting that an "additional benefit of the photobleaching system of the present invention is that they are generally more fabric and color safe than conventional bleaches (i.e. hypochlorite)" [0277]. Further, Wiley expressly teaches that while the Wiley compositions may be formulated to contain bleaching agents and activators, "these include oxygen bleaches other than the hypohalite (e.g. hypochlorite) bleaches" [0314].

While Wiley discloses numerous other beaching agents and activators which may be employed in the Wiley formulations, it is clear that Wiley avoids any combination which would

yield a hypohalite. The present inventors, on the other hand, expressly employ oxidants in combination with metallic halides in water, in order to promote formation of the hypohalite which underpins the observed synergistic effect with respect to decontamination efficacy. Willey is more concerned with color maintenance combined with stain removal in a photobleaching solution and therefore must avoid formation of the very product desired by the selection criteria of ingredients according to the present invention.

As with many novel and patentable formulations and compositions, the present invention employs ingredients already known in the chemical arts. The inventive essence is the particular combination of those ingredients guided by the disclosed motivation, and, in this case, the unexpected synergy exhibited by *that* combination with respect to *that* motivation. It is axiomatic to patent law that patentability may be found in novel combinations of known ingredients. The fact that all the ingredients may be found in a single reference is inapposite to application of the rule, unless that reference also discloses a motivation to combine the ingredients as the inventor combined them, or if such a motivation exists in the art. Not only does the asserted 103 reference, Willey, fail to state a motivation that would lead a person of ordinary skill in the art to achieve the presently recited combination of ingredients, it expressly teaches away from the instant combinations by teaching away from combinations that would yield hypochlorite and other conventional bleaches, a result that is not only disclosed as presently desirable, but which forms a substantial portion of the motivation to combine the instantly recited ingredients according to the present invention as defined by the independent claims.

It is therefore clear that while Willey discloses “inorganic salts” in a general listing of possible ingredients, and also discloses certain oxidants and buffers in similar general listings, Willey would not combine ingredients that would generate *in situ* the presently desirable hypohalite. The Examiner correctly noted that, despite disclosing 17 examples of compositions formulated according to the Willey motivations, there is not a single example of the instantly recited ingredient combination. Applicants respectfully submit that this is not inadvertent in view of the fact that Willey teaches away from the presently inventive combination of ingredients.

To establish *prima facie* obviousness of the claimed invention, all the claim limitations must be taught or suggested by the prior art, *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). However, Federal Circuit precedent also requires that to find a combination obvious there must be some teaching, suggestion, or motivation in the prior art to select the teachings of separate references and combine them to produce the claimed combination, *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1385, 58 USPQ2d 1286 (Fed. Cir. 2001); see also *Interconnect Planning Corp. v. Feil* 774 F.2d 1132, 1143, 227 USPQ 543 (Fed. Cir. 1985) (“When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself.”). In this instance, the motivation disclosed by Willey, the assertedly obviating reference, is the provision of photobleaching compositions that balance photoactivator efficacy with solubility in water. Despite the reference’s extensive list of ingredients known in the bleaching arts and the general disclosure of ingredients recited as elements of the presently inventive compositions, there is no motivation in Willey to combine the ingredients as the inventors combined them. Indeed, Willey expressly and unequivocally teaches away from the presently inventive compositions.

A *prima facie* case of obviousness, if established, may be rebutted by a showing that the prior art teaches away from the claimed invention, *In re Geisler*, 116 F.3d 1465, 1469, 1471, 43 USPQ2d 1362 (Fed. Cir. 1997). “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or

would be led in a direction divergent from the path that was taken by the applicant" *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130 (Fed. Cir. 1994). Clear discouragement of a combination constitutes teaching away, *In re Fulton*, 391 F3d 1195, 1199-1200, 73 USPQ2d 1141 (Fed. Cir. 2004). Willey expressly teaches that hypohalite, including hypochlorite, is excluded from the photobleaching compositions. Yet the synergism disclosed by the present inventors is based in substantial part on the in situ generation of hypohalite by the unique combination of ingredients including specified oxidants and halide salts in water. In the present inventive compositions, the halide salt is disclosed as a reactive source [0009] so that powerful oxidative species such as the hypochlorite, are generated in situ [0011-0012] and at composition pH's that are not as corrosive as the known caustic formulations which typically provide the hypohalite species commercially. The presently inventive compositions are expressly formulated to achieve generation of the very species expressly excluded from the compositions of Willey. Hence, instant independent claims 8, 34 and 40, and the claims dependent therefrom are nonobvious and patentable over Willey. The rejection of these claims under 35 U.S.C. § 103(a) is therefore overcome and reconsideration is respectfully requested.

In view of the comments, the applicant believes that each and every issue raised by the examiner under this rejection has been addressed and overcome. Applicant respectfully submits that the present application is in condition for allowance. The examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,

DINSMORE & SHOHL LLP

By: /Monika J. Hussell/  
Monika J. Hussell  
Registration No. 37,359

Dinsmore & Shohl LLP  
900 Lee Street, Suite 600  
Huntington Square  
Charleston, WV 25301  
Telephone: (304) 357-9924  
Facsimile: (304) 357-0919  
monika.hussell@dinslaw.com